



SLOVENSKI STANDARD

SIST EN 4003:2009

01-marec-2009

Aeronavtika - Aluminijeva zlitina AL-P2219-T87 - Pločevina in trakovi $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

Aerospace series - Aluminium alloy AL-P2219-T87 - Sheet and strip $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

Luft- und Raumfahrt - Aluminiumlegierung AL-P2219-T87 - Bleche und Bänder $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

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Série aérospatiale - Alliage d'aluminium AL-P2219-T87 - Tôles et bandes $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

[SIST EN 4003:2009](https://standards.iteh.ai/catalog/standards/sist/408c259f-3e63-41ac-a14f-c6c0b52462e/sist-en-4003-2009)

Ta slovenski standard je istoveten z: EN 4003:2006

ICS:

49.025.20 Aluminij

Aluminium

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en,de

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EUROPEAN STANDARD

EN 4003

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2006

ICS 77.150.10

English Version

Aerospace series - Aluminium alloy AL-P2219-T87 - Sheet and strip $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

Série aérospatiale - Alliage d'aluminium AL-P2219-T87 -
Tôles et bandes $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

Luft- und Raumfahrt - Aluminiumlegierung AL-P2219-T87 -
Bleche und Bänder $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$

This European Standard was approved by CEN on 12 June 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	3
Introduction	4
1 Scope	4
2 Normative references	4

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[SIST EN 4003:2009](https://standards.iteh.ai/catalog/standards/sist/408c259f-3e63-41ac-a14f-c6e6b32462e/sist-en-4003-2009)

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Foreword

This document (EN 4003:2006) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 4003:2006 (E)**Introduction**

This standard is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

This standard has been prepared in accordance with EN 4500-2.

1 Scope

This standard specifies the requirements relating to:

Aluminium alloy AL-P2219-T87 — Sheet and strip $0,5 \text{ mm} \leq a \leq 6 \text{ mm}$ for aerospace applications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*

EN 4400-2, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 2: Sheet and strip*¹⁾

EN 4500-2, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 2: Specific rules for aluminium, aluminium alloys and magnesium alloys*¹⁾

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¹⁾ Published as ASD prestandard at the date of publication of this standard.

1	Material designation		Aluminium alloy AL-P2219-											
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Zn	Ti	V	Zr	Others		Al Base
		min.	–	–	5,8	0,20	–	–	0,02	0,05	0,10	–	–	
		max.	0,20	0,30	6,8	0,40	0,02	0,10	0,10	0,15	0,25	0,05	0,15	
3	Method of melting		–											
4.1	Form		Sheet and strip											
4.2	Method of production		Rolled											
4.3	Limit dimension(s)	mm	$0,5 \leq a \leq 6$											
5	Technical specification		EN 4400-2											

6.1	Delivery condition	T37	T87
	Heat treatment	530 °C ≤ θ ≤ 540 °C / WQ θ ≤ 40 °C + approximately 7 % cold work + θ = ambient / t ≥ 5 d	530 °C ≤ θ ≤ 540 °C / WQ θ ≤ 40 °C + approximately 7 % cold work + 157 °C ≤ θ ≤ 168 °C / 10 h ≤ t ≤ 28 h
6.2	Delivery condition code	K	U
7	Use condition	T87	T87
	Heat treatment	Delivery condition + 157 °C ≤ θ ≤ 168 °C / 10 h ≤ t ≤ 28 h	Delivery condition

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8.1	Test sample(s)		See EN 4400-2.	
8.2	Test piece(s)		See EN 4400-2.	
8.3	Heat treatment		Use condition	
9	Dimensions concerned	mm	$0,5 \leq a \leq 1,0$	$1,0 < a \leq 6$
10	Thickness of cladding on each face	%	–	–
11	Direction of test piece		LT	LT
12	Temperature	θ	°C	Ambient
13	Proof stress	R _{p0,2}	MPa	≥ 360
14	T Strength	R _m	MPa	≥ 440
15	Elongation	A	%	A _{50 mm} ≥ 5
16	Reduction of area	Z	%	–
17	Hardness		–	
18	Shear strength	R _c	MPa	–
19	Bending	k	–	–
20	Impact strength		–	
21	Temperature	θ	°C	–
22	Time		h	–
23	Stress	σ _a	MPa	–
24	C Elongation	a	%	–
25	Rupture stress	σ _R	MPa	–
26	Elongation at rupture	A	%	–
27	Notes (see line 98)		–	

EN 4003:2006 (E)

44	External defects	–	See EN 4400-2.				
82	Batch uniformity	–	See EN 4400-2.				
		5	–	T37	T87		
		7	Electrical conductivity	γ	MS/m	16,5 (Typical value)	21,5 (Typical value)
		or					
		7	Hardness	HB	95 (Typical value)	130 (Typical value)	
				$\delta \leq 16$ per product	$\delta \leq 20$ per product		
				$\Delta \leq 24$ per batch	$\Delta \leq 30$ per batch		
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95	Marking inspection	–	See EN 4400-2.				
96	Dimensional inspection	–	See EN 4400-2.				
98	Notes	–	–				
99	Typical use	–	–				